

L. S. ELLETT.
CULTIVATOR.
APPLICATION FILED JULY 22, 1910.

976,729.

Patented Nov. 22, 1910.

2 SHEETS—SHEET 1.

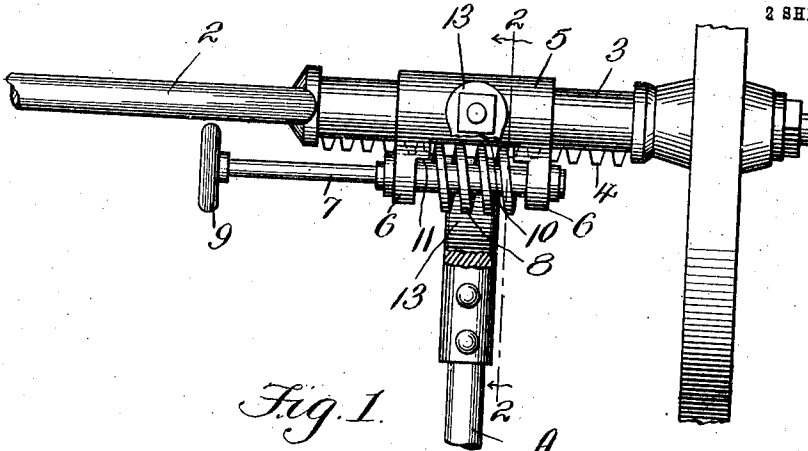


Fig. 1.

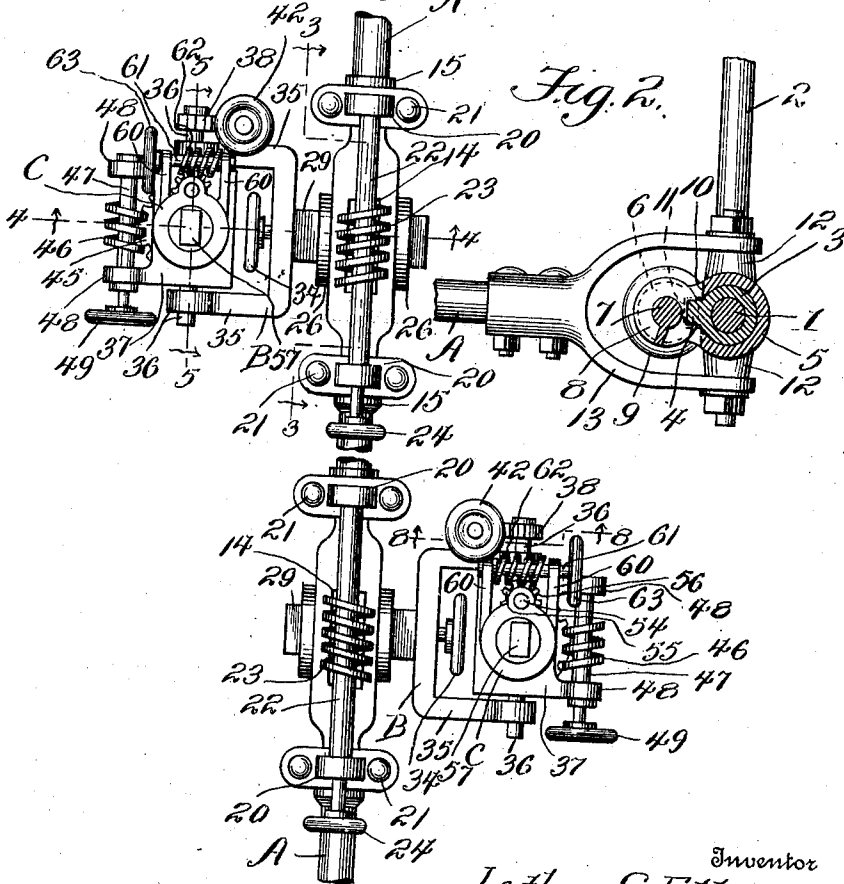


Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

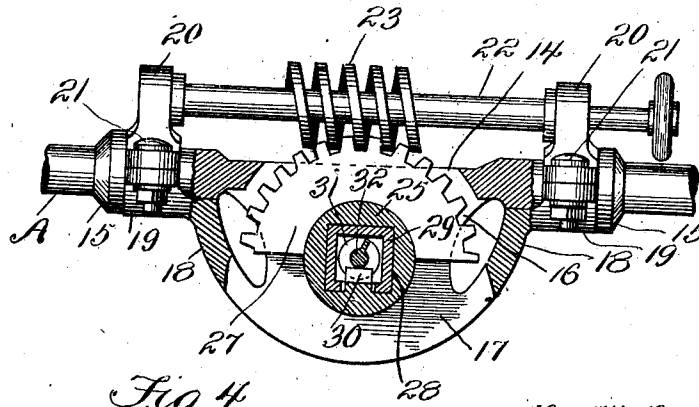


Fig. 4.

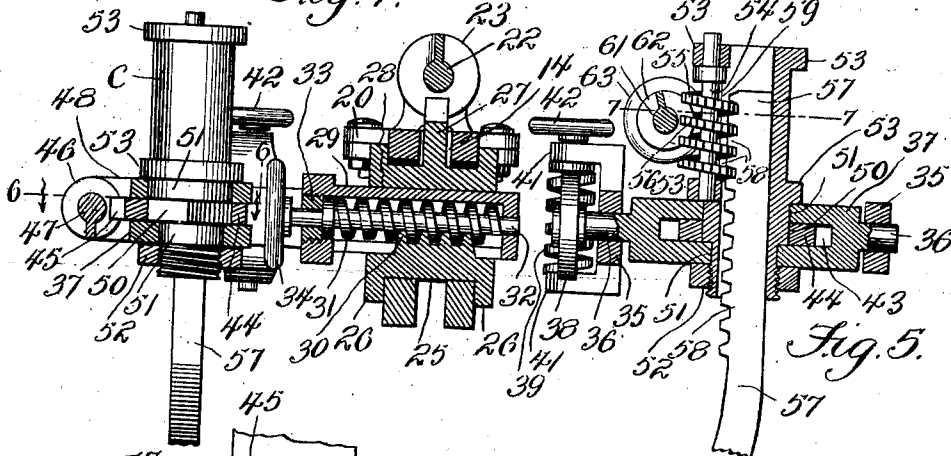


Fig. 5.

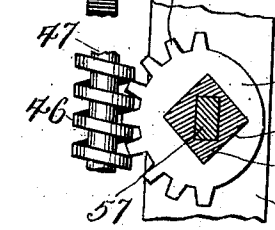


Fig. 6.

Fig. 8.

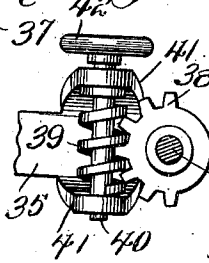
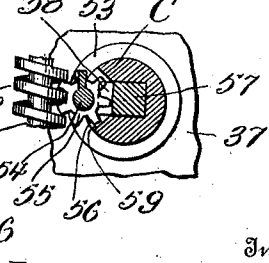


Fig. 7.



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UNITED STATES PATENT OFFICE.

LUTHER S. ELLETT, OF CELINA, TEXAS.

CULTIVATOR.

976,729.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed July 22, 1910. Serial No. 573,320.

To all whom it may concern:

Be it known that I, LUTHER S. ELLETT, a citizen of the United States of America, residing at Celina, in the county of Collin and State of Texas, have invented new and useful Improvements in Cultivators, of which the following is a specification.

This invention relates to cultivators and especially to riding cultivators.

Among the objects of the invention are to provide simple and efficient means for effecting lateral adjustment of the cultivator beam with reference to the axle or carrying frame and for effecting adjustment of the cultivator foot or standard with reference to the carrying means whereby it is supported upon the cultivator beam.

A further object of the invention is to provide simple and efficient means for connecting the standard carrying means with the cultivator beam and for effecting the requisite adjustment of such carrying means.

A further object of the invention is to improve the construction of the cultivator beam and related parts.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a top plan view partly in section of a cultivator beam, the standards and standard carrying means connected therewith and related parts, including the connecting means between the beam and the cultivator axle. Fig. 2 is a vertical sectional view taken on the line 2—2 in Fig. 1. Fig. 3 is a sectional view taken on the line 3—3 in Fig. 1. Fig. 4 is a sectional view taken on the line 4—4 in Fig. 1. Fig. 5 is a sectional view taken on the line 5—5 in Fig. 1. Fig. 6 is a sectional detail view taken on the line 6—6 in Fig. 4. Fig. 7 is a sectional detail view taken on the line 7—7 in Fig. 5. Fig. 8 is a sectional detail view taken on the line 8—8 in Fig. 1.

Corresponding parts in the several figures are denoted by like characters of reference.

The cultivator beam A shown in the accompanying drawings is adapted for carrying a foot or standard to be equipped with the customary earth engaging blade at each side thereof, and it will be understood that the standard carrying and adjusting means are of identical construction at each side of the beam.

The forward end of the beam is adjustably connected with and supported upon the arm 1 of the axle, a portion of the axle arch being shown at 2. Fitted upon the arm 1 is a sleeve 3 having a plurality of teeth forming a rack 4 upon the rear side thereof. The sleeve 3 is surrounded by a collar 5 having lugs forming bearings 6 wherein a shaft 7 is supported, said shaft carrying a worm 8 meshing with the rack 4 and a handle 9, whereby it may be rotated to effect adjustment of the collar 5 upon the sleeve 3. The collar 5 is obviously slotted intermediate the ends thereof, as shown at 10, to permit engagement of the worm 8 with the rack 4, and the said collar is likewise internally grooved, as shown at 11 in Fig. 2, for the accommodation of the rack.

The collar 5 is provided upon its upper and lower sides with projections 12 affording bearings for the arms of a yoke 13 which is mounted upon the forward end of the beam A, permitting said beam to swing in an approximately horizontal plane. The sleeve 3 is revoluble upon the axle arm 1, and the beam may thus be swung in an approximately vertical plane. The collar 5 with which the beam is directly connected being movable upon the sleeve 3 by the rack and worm 4, 8 will provide for lateral adjustment of the beam with reference to the frame of the machine.

As previously stated, the beam, as shown in Fig. 1, is provided with two standard carrying devices, but the construction being identical, the description of one will apply to each.

For the attachment of each standard carrying device, the beam is provided with a slot 14 adjacent to the ends of which flanges or collars 15 are formed. The underside of the beam is provided adjacent to each slot with a projection 16 which forms a half-box, the mate of which 17 is formed upon a yoke 18, the ends of which are provided with half-boxes 19 straddling the

underside of the beam. The mates 20 of the half-boxes 19 are connected with the latter in the usual manner by bolts 21, and said mating or upper half-boxes 20 form bearings for a shaft 22 carrying a worm 23 and a hand wheel 24 whereby it may be rotated.

Supported for rotation in the bearing formed by the half-boxes 16 and 17 is a cylinder 25 having terminal flanges 26 to retain it in the bearing, said cylinder being provided with a segment rack 27 which is concentric with the axis thereof and which protrudes through the slot 14 of the beam so as to mesh with the worm 23, which latter may be rotated by the hand wheel 24 for the purpose of rocking or oscillating the cylinder 25 about the axis of said cylinder.

The cylinder 25 has a longitudinal aperture 28 of square or non-circular cross section for the accommodation of a correspondingly shaped arm 29 which is slidably mounted therein. The bottom of the non-circular aperture 28 is provided with a plurality of teeth constituting a rack 30, said rack teeth meshing with a worm 31 formed upon a shaft 32 which extends longitudinally through the arm 29 which is made hollow for the reception of said worm carrying shaft. A screw threaded plug 33 may be provided to prevent endwise displacement of the worm carrying shaft in the arm 29, and the shaft 32 is provided with a hand wheel 34 whereby it may be rotated.

The arm 29 carries at what may be regarded its outer end a yoke B, the side members of which 35 are provided with bearings for the trunnions 36 extending from a block 37, which latter will thus be tiltably mounted in said yoke. One of the trunnions 36 carries a segment rack 38 meshing with a worm 39 upon a shaft 40 having its bearings in lugs or ears 41 formed upon the side member of the yoke, and said shaft is provided with a hand wheel 42, whereby it may be rotated for the purpose of tilting the block 37 in the yoke.

The block 37 is provided with a horizontal recess 43 for the accommodation of a plate 44 having a rack segment 45 which projects through the recess at the outer edge of the block, said rack segment meshing with a worm 46 upon a shaft 47 which is supported for rotation in lugs or bearings 48 projecting from the block 37, said shaft being provided with a hand wheel 49 whereby it may be rotated for the purpose of rocking the plate 44 about an approximately vertical axis.

C designates a standard carrying tube having a square or non-circular portion 50, see Fig. 6, engaging a correspondingly shaped aperture in the plate 44. Said tube also has circular portions 51 engaging correspondingly shaped apertures which are formed in the block 37 adjacent to the re-

cess 43, the parts being of such dimensions as to permit them to be conveniently assembled. To retain the parts in assembled condition a nut 52 is threaded upon the lower end of the tube C. The said tube C is provided upon the portion thereof which extends above the block 37 with spaced flanges 53 affording bearings for a shaft 54 having a worm 55, the threads of which are notched to form teeth 56. The plow carrying foot or standard 57 is vertically slidable in the tube C, the aperture of which is of non-circular cross section, and said foot or standard is provided with teeth forming a rack 58 meshing with the worm 55 through an aperture or slot 59 in the front side of the tube. The latter is provided with lugs 60 affording bearings for a shaft 61 carrying a worm 62 meshing with the teeth 56 upon the threads of the worm 55 for the purpose of rotating the latter to effect vertical adjustment of the plow carrying standard. The shaft 61 is provided with a hand wheel 63 whereby it may be rotated.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. By rotating the shaft 61 the worm carrying shaft 54 will be rotated to effect vertical adjustment of the plow carrying standard. Adjustment of said standard about its axis to present the earth engaging tool carried thereby in various directions (said tool being, however, not shown in the drawings, being of ordinary construction and well understood) may be effected by manipulating the worm carrying shaft 47. By manipulating the worm carrying shaft 40, the block 37 carrying the standard may be tilted, thus tilting the said standard in an approximately vertical plane at approximately right angles to the beam, and by manipulating the worm carrying shaft 22, the yoke carrying the block 37 may be tilted so as to tilt the standard in a plane approximately parallel to the axis of the beam. The latter may be bodily shifted or moved laterally by manipulating the worm carrying shaft 7, and the entire beam with the parts carried thereby may be moved in various directions, being universally jointed to or connected with the axle arm which constitutes a part of the frame of the machine.

As will be readily seen, the various adjustments may be very conveniently effected, no tools of any kind, such as wrenches or the like, being required, and owing to the employment of worm gears for the various adjustments, the parts will be safely retained in adjusted position without the employment of special means for locking or securing the parts when adjusted.

Having thus described the invention, what is claimed as new, is:—

1. In a cultivator, an axle arm, a sleeve journaled thereon and having a rack, a collar slidable on the sleeve and having a slot through which the rack projects, a shaft supported for rotation upon the sleeve and having a worm meshing with the rack through the slot in the collar, projections upon diametrically opposite sides of the collar, and a beam having a yoke pivoted upon said projections.

2. In a cultivator, a beam having a slot and a half-box formed adjacent to the slot, a yoke having a half-box mating the half-box upon the beam, said yoke being provided at the ends thereof with half-boxes straddling the beam, half-boxes mating with the half-boxes upon the yoke to collapse the beam between them, said latter half-boxes being provided with bearings, a worm carrying shaft supported in said bearings and having a hand wheel, a sleeve supported in the half-boxes of the beam and the yoke and having a rack segment projecting through the slot of the beam and meshing with the worm upon the worm carrying shaft, and a standard carrying yoke having an arm connected with said sleeve.

3. In a cultivator, a beam, a yoke connected therewith, mating half-boxes upon the beam and the yoke, a sleeve supported for oscillation in said half-boxes and having a bore of non-circular cross section and provided with internal rack teeth, means for rocking said sleeve in its bearings, a hollow arm movable longitudinally in the sleeve and having at one end a standard carrying yoke, said arm being provided with a slot, a shaft supported for rotation longitudinally within the arm and having a worm engaging the rack teeth of the sleeve which project through the slot in the arm, means for retaining the worm carrying shaft against longitudinal displacement, and means for rotating said shaft.

4. In a cultivator, a beam, a rocking sleeve supported for oscillation transversely of the beam, an arm adjustable longitudinally of said sleeve and having a yoke at one end, a block having trunnions pivotally engaging the side members of the yoke, one of said trunnions being provided with a segment rack, and a worm carrying shaft supported for rotation in bearings upon one of the side members of the yoke in mesh with the segment rack; and a plow foot or standard carried by the block.

5. In a cultivator, a beam, a rocking sleeve supported transversely of the beam, an arm

slidable longitudinally in said sleeve and having a yoke at one end, a block pivotally supported in the yoke and having a recess, a plate mounted in the recess and having a segment rack projecting at one side of the block, bearing members upon said block, a shaft supported in the bearings and having a worm meshing with the rack segment, and a tubular member extending through the block and the plate and connected with said plate to move therewith when said plate is actuated by the worm engaging the rack upon said plate.

6. In a cultivator, a beam, a rocking sleeve supported transversely of the beam, an arm extending through the sleeve and movable longitudinally of the latter, said arm having a yoke at one end, a block pivotally supported in the yoke and having a recess, an oscillating plate supported in said recess, a tubular member extending through the block and the plate and connected with said plate for oscillatory movement therewith, said tubular member being provided with bearings, with a non-circular opening and with a slot, a worm carrying shaft supported for rotation in the bearings, and a standard supported for movement in the tubular member longitudinally of the latter, said standard being provided with rack teeth meshing with the worm upon the shaft through the slot in the tubular member.

7. In a cultivator, a beam, a sleeve supported for oscillation transversely of the beam, an arm supported for movement in the sleeve longitudinally of the latter and having a yoke at one end, a block pivoted in the yoke and having a recess, a plate supported for oscillation in said recess, a tubular member extending through the block and the plate and connected with the latter for oscillation therewith, said tubular member being provided with a slot, a standard movable in the tubular member and having rack teeth adjacent to the slot and having a worm engaging the rack teeth, the threads of said worm being notched to form teeth, and a second shaft supported for rotation upon the tubular member transversely of the first shaft and having a worm meshing with the teeth formed in the worm upon the first shaft, said latter worm carrying shaft being provided with a hand wheel whereby it may be rotated.

In testimony whereof I affix my signature in presence of two witnesses.

LUTHER S. ELLETT.

Witnesses:

D. A. McCox,

C. L. NEELY.